

## What is Claimed is:

- [c1] A method for creating a notarized document from a document, comprising:
- acquiring image data of the document;
  - generating a document data file based on the image data, the document data file comprising an exemplar table that identifies position of an occurrence of an exemplar and a block table;
  - determining connected components;
  - grouping the connected components into exemplars;
  - creating the exemplar table based on the exemplars;
  - creating the block table based on the exemplars; and
  - appending the document data file to the document.
- [c2] A method as recited in claim 1, further comprising:
- digitally signing the document data file.
- [c3] A method as recited in claim 1, wherein creating the exemplar table comprises:
- identifying location information of at least one occurrence of an exemplar for each of the exemplars; and
  - storing the location information in the exemplar table.
- [c4] A method as recited in claim 1, wherein creating the exemplar table comprises:
- identifying a location of at least one occurrence of an exemplar for each of the exemplars;
  - determining a dimension of the at least one occurrence of the exemplar from the identifying step; and,
  - storing the location and the dimension of the at least one occurrence of the exemplar in the exemplar table.
- [c5] A method as recited in claim 3, wherein creating the block table comprises:
- determining a block of the connected components;
  - identifying the position of an occurrence of one of the exemplars within the block; and

storing the position in the block table.

- [c6] A method as recited in claim 3, further comprising:
- generating a fiducial point for each of the exemplars;
  - generating a fine tuning positioning command for at least one of the exemplars;
  - storing the fiducial point in the exemplar table;
  - storing the fine tuning positioning command in the block table; and
  - combining and compressing the exemplar table and the block table.
- [c7] A method as recited in claim 6, wherein generating the fiducial point comprises:
- determining a block of the connected components;
  - creating an exemplar histogram for each of the exemplars;
  - creating a block histogram for the block;
  - defining a baseline for the block;
  - determining a baseline crossing for each of the exemplars in the block;
  - adding the baseline crossing for each of the exemplars to the respective exemplar histograms;
  - determining the median of the baseline crossing values contained in each of the exemplar histograms; and
  - designating the median of the baseline crossing values for each of the exemplar histograms as the fiducial point for the respective exemplar.
- [c8] A method as recited in claim 6, further comprising:
- determining a block of the connected components; and
  - creating an actual position table that stores actual positions of the connected components on the document,
- wherein generating fine tuning positioning commands comprises:
- selecting at least one connected component of the connected components in the block;
  - determining the position of the at least one connected

component;  
comparing the position of the at least one connected component to a position of the corresponding connected component in the actual position table to determine if there is a difference; and  
if there is a difference, adding position tuning commands to the block table for the exemplar that corresponds to the selected connected component to correct for the difference.

- [c9] An apparatus that creates a notarized document from a document, comprising:
- a controller;
  - a memory that stores image data of the document;
  - a connected components determining circuit that determines connected components based on the image data;
  - a connected components grouping circuit that groups the connected components into a plurality of groups and generates an exemplar for each of the groups;
  - an exemplar table generation circuit that generates an exemplar table by identifying positions of an occurrence for each of the exemplars;
  - a block table generation circuit that generates a block table by identifying blocks of the connected components and determining the position of each occurrence for each of the exemplars in each of the blocks;
  - a fiducial point generation circuit that generates a fiducial point for each of the exemplars and adds the fiducial point for each of the exemplars to the exemplar table; and
  - a data appending circuit that appends the exemplar table and the block table to the document,
- wherein the controller operates the connected components determining circuit, the connected components grouping circuit, the exemplar table generation circuit, the block table generation circuit, the fiducial point generation circuit and the data appending circuit.

- [c10] An apparatus as recited in claim 9, further comprising a digital signing circuit that digitally signs the block table and the exemplar table.
- [c11] An apparatus as recited in claim 9, further comprising a position tuning circuit that adds positioning commands to the block table for each of the blocks based on a comparison of a placement of each of the connected components derived from the block table and the exemplar table to positions of the connected components.
- [c12] An apparatus as recited in claim 9, wherein:  
the fiducial point generation circuit generates the fiducial point for each of the exemplars by:  
creating an exemplar histogram for the exemplars;  
generating a block histogram for each of the blocks;  
defining a baseline for each of the blocks;  
determining a baseline crossing for each of the exemplars in each of the blocks;  
adding the baseline crossings for each of the exemplars to the respective exemplar histograms;  
determining the median of the baseline crossings in each of the exemplar histograms; and  
designating the median of the baseline crossings for each of the exemplar histograms as the fiducial point for the respective exemplar.
- [c13] An apparatus as recited in claim 9, further comprising an image data source that provides the image data to the memory.
- [c14] An apparatus as recited in claim 9, further comprising an input device that provides commands to the controller.
- [c15] An apparatus as recited in claim 9, further comprising a printer that prints the notarized document.
- [c16] An apparatus as recited in claim 9, further comprising a display that displays

the notarized document.

- [c17] An apparatus that verifies the authenticity of a notarized document, comprising:
- a controller;
  - a memory that stores image data of the notarized document that includes a document data file;
  - a data reading circuit that reads the document data file and outputs to the memory an exemplar table and a block table of the document data;
  - a decompression circuit that constructs a verifying document image using the exemplar table and the block table; and
  - a comparing circuit that compares the verifying document image to the image data of the notarized document and determines that the notarized document is not genuine if there are discrepancies between the verifying document image and the image data of the notarized document.

- [c18] An apparatus, as recited in claim 17, further comprising a verifying circuit that verifies a digital signature of the document data file.